RESOLUTION NO. R3-2002-0051

ATTACHMENT—PROPOSED BASIN PLAN AMENDMENTS

1. Revise the September 8, 1994 Basin Plan, Chapter Four, as follows:

Add the following to chapter 4 under IX TOTAL MAXIMUM DAILY LOADS:

IX.A MORRO BAY TOTAL MAXIMUM DAILY LOAD FOR SEDIMENT (INCLUDING CHORRO CREEK, LOS OSOS CREEK AND THE MORRO BAY ESTUARY)

This TMDL was adopted by the Regional Water Quality Control Board on May 16, 2003.
This TMDL was approved by:
The State Water Resources Control Board on September 16, 2003.
The California Office of Administrative Law on December 3, 2003.
The U.S. Environmental Protection Agency on January 20, 2004.

TMDL ELEMENTS

Element	
Problem Statement	Over time, all estuaries eventually fill with sediment due to the natural processes of erosion and sedimentation. In Morro Bay these natural processes have been accelerated due to anthropogenic watershed disturbances, resulting in impairment of Beneficial Uses, principally biological resources, but also recreational uses, including: RARE, MIGR, SPWN, WILD, EST, MAR, BIOL, REC1, REC2, NAV. This impairment indicates an exceedance of the Basin Plan narrative objective for sediment, which states that: "the suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses."

Element

Numeric Targets

Parameter	Numeric Target
Chorro and Los Osos Creeks and Tributaries Streambed Sediment	
Residual Pool Volume[1]	V* (a ratio) = Mean values ≤ 0.21 (mean of at least 6 pools per sampling reach) Max values ≤ 0.45
Median Diameter (D_{50}) of Sediment Particles in Spawning Gravels	D_{50} = Mean values ≥ 69 mm Minimum values ≥ 37 mm
Percent of Fine Fines (< 0.85 mm) in Spawning Gravels	Percent fine fines ≤ 21%
Percent of Coarse Fines (all fines < 6.0 mm) in Spawning Gravels	Percent coarse fines ≤ 30%
Morro Bay and Estuary	
Tidal Prism Volume	4,200 acre-feet

Loading Allocations (TMDL expressed as annual load)

Watershed	Total (tons/year, rounded to nearest ton)
Chorro Creek at Reservoir	6,541
Dairy Creek	440
Pennington Creek	966
San Luisito Creek	7,315
San Bernardo Creek	10,269
Minor Tributaries	4,489
Chorro Creek	30,020
Los Osos Creek	3,052
Warden Creek and Tributaries	1,812
Los Osos Creek	4,864
Morro Bay Watershed	34,885

[1] Residual Pool Volume refers to the portion of a pool in a stream that is available for fish to occupy. Pool habitat is the primary habitat for steelhead in summer. Overwintering habitat requirements include deeper pools, undercut banks, side channels, and especially large, unembedded rocks, which provide shelter for fish against the high flows of winter. V* gives a direct measurement of the impact of sediment on pool volume. It is the ratio of the amount of pool volume filled in with fine, mobile sediment, to total scour pool volume. Qualifying pools are those having a gradient less than 5%, a minimum depth twice the riffle-crest depth, a fairly even spacing between tributaries, and are located on streams fifth order or smaller.

Implementation	The sediment load to Morro Bay, Los Osos Creek and Chorro Creek derives from nonpoint sources (NPS) and point sources. As such, implementation will rely on the State's Plan for NPS pollution control (CWC §13369) and continued implementation of existing regulatory controls as appropriate for point sources, including storm water pursuant to NPDES surface water discharge regulations and Waste Discharge Requirements (Porter Cologne). At this time, implementation emphasizes the activities of the Morro Bay National Estuary Program, Coastal San Luis Resources Conservation District, and other public and private groups that are not currently identified as dischargers responsible for sediment loading, to implement self-determined activities (see Table: Trackable Implementation Actions). Other actions, currently required because of another program, will be evaluated to make sure progress is taking place (see Table: Trackable Implementation Actions identifying Responsible Dischargers). Regional Board Staff will meet annually with the implementing parties identified in the list of Trackable Implementation Actions to provide technical assistance and to evaluate and track progress (see Implementation Schedule for details). If at the end of year three, implementing parties fail to complete these self-determined activities or resulting management practices fail to reduce sediment loads, then Regional Board staff may conduct inspections and investigations to identify individual responsible dischargers (e.g., landowners or public agencies). Regional Board staff may rely on Section 13267 of the California Water Code for investigation and identification of individual responsible dischargers. Regional Board staff will also rely on Section 13267 of the California Water Code to require reporting and/or monitoring to determine the level of implementation of identified activities to reduce erosion and sediment. If necessary, the Regional Board may rely on enforcement authority, pursuant to California Water Code Section 13304, to require dischargers to clean-up and abate sediment discharges and/or prevent the threat of discharges on a case-by case basis. Additionally, Implementation Actions (in the Table of Implementation Actions) may be identified as conditions of compliance with storm water permits and Waste Discharge Requirements. The Implementation Actions identified do not identify the specific management practices that will result in reduced sediment loads. As such, the management practices developed through pursuit of the Implementation Actions are not intended to be independently enforceable by the Regional Board. Therefore, the Regional Board will rely on scheduled 3-year reviews to track Implementation Actions and the effectiveness of management practices to determine whether to continue with self-determined implementation. If progress towards erosion and sedimentation reduction is not satisfactory, staff will develop a regulatory approach (rather than a self-determined approach) and present it to the Regional Board as a revised Basin Plan Amendment, or establish requirements on a case-by-case basis. Direct measurement of sediment loading is not proposed for this TMDL. Numeric Targets, which characterize the effect of loading are to be measured in lieu of loadings. The 50-year schedule for achieving the TMDL acknowledges that implementation actions taken in the near term are expected to take years to produce a response as measured through Numeric Target monitoring. Numeric targets and other parameters will be monitored to ensure that numeric targets are met. The Regional Board will rely on existing or planned efforts for this monitoring (e.g., Morro Bay National Estuary Program, Central Coast Ambient Monitoring Program).
Margin of Safety	An implicit margin of safety has been incorporated into this TMDL through the use of conservative assumptions throughout the source analysis and characterization of beneficial use impacts. The margin of safety is required due to uncertainty in calculations of sediment loading and of the effects of this loading on beneficial uses of the Morro Bay Estuary, Chorro Creek and Los Osos Creek.

Trackable Implementation Actions

	PROJECT NAME	ACTION	SCHEDULE	IMPLEMENTING PARTY
1	**Hollister Ranch Acquisition**	Design and construct floodplain restoration project	January 2002-May 2005	CSLRCD and MBNEP
2	**Los Osos Creek Wetland Restoration Project**	Design and construct Los Osos Creek wetland restoration project	Fall 2000-Spring 2004	CSLRCD and MBNEP
3	**Watershed Crew Curriculum**	Develop a curriculum that will provide training for a year-round crew of Civilian Conservation Corps	Winter 2001-Fall 2001	CCC
4	**Catalogue of Erosion Control Projects**	Develop a list of areas in need of erosion control projects	Spring 2001-Fall 2001; on-going	MBNEP
5	**Project Clearwater**	Provide technical assistance and cost sharing to install BMPs	2001-June 2004; on-going	CSLRCD
6	**Agricultural Water Quality Program**	Develop and implement a voluntary, cost-effective, and landowner/manager-directed program	2001-2002; on-going	Farm Bureau
7	**Land Acquisitions and Conservation Easements**	Acquire or otherwise protect lands in cooperation with willing land owners	2000-2010; on-going	MBNEP
8	**Fire Management Plan**	Develop and implement a Fire Management Plan	2001-2006; on-going	CDF
9	**Maintenance of Sediment Basins Above Chorro Reservoir**	Continue maintenance of the sediment basins above Chorro Reservoir	on-going	California Army National Guard
10	**Road Maintenance**	Increase the use of management measures for road maintenance and construction	2001-2006; on-going	County of San Luis Obispo, Public and Private Landowners; California Department of Transportation
11	**Sediment Traps**	Install sediment traps	2000-2007; on-going	CSLRCD; Natural Resource Conservation Service; DFG; Public and Private Land Owners
	PROJECT NAME	**ACTION**	**SCHEDULE**	**RESPONSIBLE DISCHARGERS**
12	**Primera Mine Rehabilitation and Erosion Control**	Remediation of Primera Mine	2003	California Army National Guard
13	**Stormwater Sediment Control on Roads**	Include specific road sediment control measures in County stormwater management plan prior to enrollment in Stormwater Permit; track implementation of BMPs	Prior to March 2003; on-going	County of San Luis Obispo
14		Track implementation of BMPs in Stormwater Permit	On-going	Caltrans
15	**Water Quality Management Plans on Chorro Creek Ranches**	Implement Waste Discharge Requirements to address Chorro Creek Ranches	Fall 2002-Fall 2003	California Polytechnic State University

Implementation Schedule

At End of Implementation Year:	IMPLEMENTATION MILESTONE			MONITORING ACTIVITY		
	Chorro Creek	***Los Osos Creek***	***Morro Bay***	***Chorro Creek***	***Los Osos Creek***	***Morro Bay***
1	RB and MBNEP Staff meet to review progress. RB and County Staff meet to review inclusion of road erosion control measures in Stormwater Management Plan.			Baseline Streambed Parameters[2], Turbidity		
2	*As above*					
3	RB and MBNEP Staff meet to review progress; RB requests implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Baseline Streambed Parameters, Turbidity		
4	RB and MBNEP Staff meet to review progress			Baseline Streambed Parameters, Turbidity		
5	RB and MBNEP Staff meet to review progress		RB Staff calculate: 5-year changes to Bay area and volume	Baseline Streambed Parameters, Turbidity		Bathymetry survey
6	RB and MBNEP Staff meet to review progress; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Baseline Streambed Parameters, Turbidity		
7	RB and MBNEP Staff meet to review progress			Baseline Streambed Parameters, Turbidity		
8	*As above*					
9	RB and MBNEP Staff meet to review progress; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Baseline Streambed Parameters, Turbidity		
10	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data		RB Staff calculate: 5-year changes to Bay area and volume	Baseline Streambed Parameters, Turbidity		Bathymetry survey
11	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data			Streambed Parameters, Turbidity		

[2] Streambed Parameters include: Residual Pool Volume; Median Diameter of Sediment Particles; Percent Fine Sediment; Percent Coarse Sediment. (See discussion of Numeric Targets).

At End of Implementation Year:	IMPLEMENTATION MILESTONE		MONITORING ACTIVITY	
12	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions		Streambed Parameters, Turbidity	
13	RB and MBNEP Staff meet to review progress; RB Staff calculates 10-year rolling average of Streambed Sediment data		Streambed Parameters, Turbidity	
14	*As above*			
15	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions	RB Staff calculate: 5-year changes to Bay area and volume	Streambed Parameters Turbidity	Bathymetry survey
16-49	*Repeat as above with 3-, 5- and 10-year milestones.*			
50	**Numeric targets achieved; load reduction achieved**			